



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,064	12/21/2001	Satoshi Seo	12732-087001	8559
26171	7590	04/01/2005	EXAMINER	
FISH & RICHARDSON P.C.			THOMPSON, CAMIE S	
1425 K STREET, N.W.			ART UNIT	
11TH FLOOR			PAPER NUMBER	
WASHINGTON, DC 20005-3500			1774	

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/026,064

Applicant(s)

SEO ET AL.

Examiner

Camie S Thompson

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on RCE filed December 17, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7, 9-13, 15-19, 21-25, 27-30, 32-42, 44-54, 56-66, 68-114, 118-121 and 125-128 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 44102 9/10/04; 12/17/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Continuation of Disposition of Claims: Claims pending in the application are 1,3-7,9-13,15-19,21-25,27-30,32-42,44-54,56-66,68-114,118-121 and 125-128.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 17, 2004 has been entered.
2. Applicant's amendment and accompanying remarks filed December 17, 2004 have been acknowledged.
3. Examiner acknowledges amended claims 1, 7, 13, 19, 25, 30, 42, 54, 66, 114 and 121.
4. Examiner acknowledges cancelled claims 2, 8, 14, 20, 26, 31, 43, 55, 67, 115-117 and 122-124.
5. The rejection of claims 25-128 under 35 U.S.C. 103(a) as being unpatentable over Tamano et al., U.S. Patent Number 6,150,042 in view of Baldo et al., U.S. Patent Number 6,097,147 is withdrawn due to applicant's amended claims and argument.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1774

7. Claims 1-24, 30, 32-41 and 78-86 are rejected under 35 U.S.C. 102(b) as being anticipated by So et al., U.S. Patent Number 5,925,980.

So discloses an organic electroluminescent device with a graded region including a hole transporting region, an electron transporting region and a graduated region disseminated between the hole transporting region and electron transporting region. Also, So discloses that the graduated region changing from hole transporting region to the electron transporting region (see column 2, lines 6-44). Claim 2 of the reference discloses that the hole transporting region from of hole transporting organic including one of an organometallic complex and an aromatic amine. Additionally, claim 2 of the reference discloses an electron transporting region formed of an electron transporting organic material including one of an organic metallic complex and an aromatic amine compound. An organic metallic complex includes a metal complex having a benzquinoline structure or a phthalocyanine compound as per instant claims 3-4, 9-10, 15-16 and 21-22).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1774

9. Claims 1, 3-7, 8-13, 15-19, 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamano et al., U. S. Patent Number 6,150,042.

Tamano discloses an electroluminescent device used for display having excellent hole-injecting capability and durability as per instant claim 6 (see column 1, lines 5-11). The reference discloses that a light-emitting layer forms the device or a plurality of organic compound thin layers including the light-emitting layer between a pair of electrodes composed of a cathode and an anode. Column 78, lines 4-46 of the reference discloses hole-transporting materials that can be used together such as aromatic tertiary amines and copper phthalocyanine as per instant claims 1-5. Additionally, the reference discloses that the light-emitting material and the dopant can be used in combination and can comprise a combination of metal complexes such as benzoquinoline complexes as per the instant claims (see column 77, lines 19-44). Column 78, lines 47-61 of the reference disclose that the electron-transporting layer can have a combination of organic compounds such as triazole and oxadiazole derivatives as per the instant claims. Column 79, lines 32-35 of the reference disclose that the light-emitting layer, hole-injecting layer and the electron-injecting layer may be formed of two or more compounds. Tamano discloses that phosphor dopants are added to promote luminescence from a triplet state (see abstract and column 2, lines 29-34). The concentration of the first and second compounds is an optimizable feature. The amount of each compounds affect the intensity of the light being emitted from the device. Therefore, it would have been obvious to one of ordinary skill in the art to have the first compound have a concentration that is decreased toward the cathode from the anode and a concentration of the compound increased toward the cathode from the anode in the light emitting

Art Unit: 1774

layer, hole transporting layer and the electron transporting layer in order to have a luminescent device that is sufficient in light emission brightness, efficiency and has excellent stability.

### ***Double Patenting***

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 25, 27-30, 32-42, 44-54, 56-66, 68-114, 118-121 and 125-128 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-148 of copending Application No. 10/060,427. Although the

Art Unit: 1774

conflicting claims are not identical, they are not patentably distinct from each other because both applications recite an organic luminescent element comprising an anode; a cathode; an organic compound region that comprises a hole injection region, a hole transporting region, a luminescent region, an electron injection region and an electron transporting region. Also, both applications recite a mixed region in which both the hole transporting material and the electron transporting material are mixed and the mixed region is doped with a triplet light emitting material. The co-pending application does not specifically disclose a concentration gradient in the mixed region or the hole and electron mobility. However, the co-pending application does use the same materials as the in the present application. Therefore, it would have been obvious to one of ordinary skill in the art to have the concentration gradient of the material contained in the luminescent layer decreased toward the cathode from the anode and that the energy difference in the mixed region is larger for the blocking material than in the hole transporting and electron transporting material in order to have the power consumption low for the device and thereby increasing the life of the device. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### *Response to Arguments*

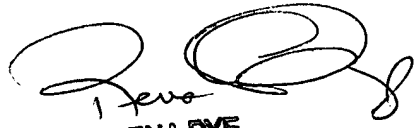
12. Applicant's arguments with respect to all pending claims have been considered but are moot in view of the new ground(s) of rejection.



Art Unit: 1774

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
RENA DYE  
SUPERVISORY PATENT EXAMINER  
AU.1774 3/3/05